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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,778	12/20/2005	Hidenobu Wakita	601560-20US (04P604US/P36)	4349
52092 7590 04/02/2009 AKIN GUMP STRAUSS HAUER & FELD LLP PANASONIC ONE COMMERCE SQUARE 2005 MARKET STREET SUITE 2200 PHILADELPHIA, PA 19103			EXAMINER RUTHKOSKY, MARK	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 04/02/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,778	Applicant(s) WAKITA ET AL.	
	Examiner Mark Ruthkosky	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 12-20 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 12-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/20/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed 12/20/2005 has been placed in the application file, and the information referred to therein has been considered as to the merits.

Drawings

The drawings filed on 12/20/2005 have been approved.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 17, the impurity removing means includes a sulfur oxide absorbing portion having an adsorbing agent OR an absorbing agent of the sulfur oxide AND a catalytic combustor disposed upstream of said sulfur oxide absorbing portion in a flow of the air. By using the “and” and “or” conjunctions in the same claim, it is not clear what claim elements are

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required for the invention. It may be (a sulfur oxide absorbing portion having an adsorbing agent OR an absorbing agent of the sulfur oxide) AND a catalytic combustor. Further, it may be (a sulfur oxide absorbing portion having an adsorbing agent) OR (an absorbing agent of the sulfur oxide AND a catalytic combustor.)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Xu (US 6,551,732.)

The instant claims are to a fuel cell system comprising a hydrogen generator including a reformer configured to generate a hydrogen-rich gas containing carbon monoxide from a fuel containing hydrocarbon and water; a shift converter configured to generate hydrogen and carbon dioxide from the carbon monoxide in the hydrogen-rich gas and the water; and a carbon monoxide removing portion configured to reduce the carbon monoxide in the hydrogen-rich gas which has not been removed in said shift converter; a fuel cell configured to generate power

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using the hydrogen-rich gas supplied from said hydrogen generator and an oxidizing gas; an air supply portion configured to supply air to at least one of a position upstream of said reformer in a flow of the fuel and a position between said carbon monoxide removing portion and said fuel cell in the flow of the fuel; and an impurity removing means configured to remove an impurity gas from the air.

Xu (US 6,551,732) teaches a fuel cell system comprising a hydrogen generator including a reformer configured to generate a hydrogen-rich gas containing carbon monoxide from a fuel containing hydrocarbon and water; a shift converter configured to generate hydrogen and carbon dioxide from the carbon monoxide in the hydrogen-rich gas and the water; and a carbon monoxide removing portion configured to reduce the carbon monoxide in the hydrogen-rich gas which has not been removed in said shift converter; a fuel cell configured to generate power using the hydrogen-rich gas supplied from said hydrogen generator and an oxidizing gas; an air supply portion configured to supply air to at least one of a position upstream of said reformer in a flow of the fuel and a position between said carbon monoxide removing portion and said fuel cell in the flow of the fuel (col. 2, lines 40-55; col. 5, line 25 to col. 6, line 60; claims 1-25) and an impurity removing means configured to remove an impurity gas from the air (col. 1, lines 35-45.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu (US 6,551,732) as applied above, in view of Shuji et al. (JP 2003-317783) and further in view of Zhu et al. (US 2004/0035055.)

Xu (US 6,551,732) teaches a fuel cell system comprising a hydrogen generator including a reformer configured to generate a hydrogen-rich gas containing carbon monoxide from a fuel containing hydrocarbon and water; a shift converter configured to generate hydrogen and carbon dioxide from the carbon monoxide in the hydrogen-rich gas and the water; and a carbon monoxide removing portion configured to reduce the carbon monoxide in the hydrogen-rich gas which has not been removed in said shift converter; a fuel cell configured to generate power using the hydrogen-rich gas supplied from said hydrogen generator and an oxidizing gas; an air supply portion configured to supply air to at least one of a position upstream of said reformer in a flow of the fuel and a position between said carbon monoxide removing portion and said fuel cell in the flow of the fuel (col. 2, lines 40-55; col. 5, line 25 to col. 6, line 60; claims 1-25) and an impurity removing means configured to remove an impurity gas from the air (col. 1, lines 35-45.)

Xu (US 6,551,732) teaches a fuel cell system comprising the specific impurity means of claims 12-15 or the combustor or claims 17-20. Shuji et al. (JP 2003-317783), however, teaches an impurity removing means coupled to the cathode exhaust line that is routed to the reforming system of the fuel cell (paragraphs 4-6, 50.) The system includes a burner upstream from the absorbing material (p. 9-10, 21-22.) The system further includes a desulfurizer located upstream from the reformer for preventing the reforming process reactors from being contaminated with sulfur compounds. The combustors exchange heat with the reforming hydrogen generator system. The Shuji reference does not teach the specific impurity removing

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materials, however, the claimed materials are well known in the art for removing the sulfur impurities noted by Xu and it would have been obvious to one of ordinary skill in the art to use these impurity removing means to prevent impurities such as sulfur compounds from absorbing to and contaminating the catalysts of the reforming system and the fuel cell. For example, Zhu et al. (US 2004/0035055) teaches a variety of sulfur impurity compounds including metal oxides such as cesium oxide. As et al. (JP 2003-317783), however, teaches an impurity removing means coupled to the cathode exhaust line to prevent impurities from entering the reforming section of the fuel cell. One of ordinary skill in the art would be motivated to use various impurity removing means that prevent known reaction products from entering the reforming section.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795